

Amendments to the Claims:


This listing of claims replaces all prior versions and listings of claims in the application:

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(Currently Amended) 1. A hybrid power supply comprises:

a switching type DC/DC boost type converter that receives energy from a primary battery cell and is arranged to deliver the energy to a rechargeable cell, the DC/DC converter having a feedback input set to provide a fixed output voltage that is less than the full charge voltage of the rechargeable cell; and



a pair of external resistors coupled to the feedback input of the converter to adjust the fixed output voltage to be less than the full charge voltage of the rechargeable cell.

 (originally filed) 2. The hybrid power supply of claim 1, further comprising:

a circuit including a primary battery current control that senses primary battery current, and controls in part operation of the converter to provide constant current discharge on the primary battery side of the hybrid power supply.

(Currently Amended) 3. The hybrid power supply of claim 1, wherein the circuit further comprises:

a primary current sense amplifier/comparator and a power shutdown control circuit to shut down the primary current sense amplifier/comparator.

 Claim 4 is canceled. 

(Currently Amended) 5. The hybrid power supply of claim 1 wherein the primary battery is an alkaline cell, Zn-air cell, fuel cell, solar cell, or another current limited power source.

(Currently Amended) 6. The hybrid power supply of claim 1 wherein the rechargeable battery is a Li-Ion or Li-Polymer rechargeable cell.

(Currently Amended) 7. The hybrid power supply of claim 4 wherein the primary battery control comprises:

an operational amplifier with a primary battery current sensing resistor to provide primary battery current control, ~~having~~ the output of the amplifier coupled ~~to the~~ in a closed feedback loop of the converter.

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(Currently Amended) 8. The hybrid power supply of claim 9 wherein the closed feedback loop of the converter further comprises:

a resistor coupled between output and feedback terminals of the converter.

(originally filed)9. The hybrid power supply of claim 1 wherein the circuit delivers an output voltage that corresponds to about 90% charge of the rechargeable cell.

(Currently Amended) 10. A hybrid power supply comprises:

a switching type DC/DC boost type converter that receives energy from a primary cell with the primary cell being an alkaline cell, Zn-air cell, fuel cell, solar cell, or another current limited power source, and is arranged to deliver the energy to a rechargeable cell with the rechargeable cell being an Li-Ion or Li-Polymer rechargeable cell;

a circuit disposed to control the switching type DC/DC converter, the circuit comprising:

a resistor voltage divider coupled to the feedback input of the converter, selected to provide a fixed output voltage that is less than the full charge voltage of the rechargeable cell.

(Currently Amended) 11. The hybrid power supply of claim 10, further comprising:

a primary battery current sensor/comparator, included in the feedback control loop of the DC/DC converter, which controls in part operation of the converter to provide constant current discharge on the primary battery side of the hybrid power supply.

[Claims 12 and 13 are canceled]

(Currently Amended) 14. The hybrid power supply of claim ~~15~~ 10 wherein the circuit delivers an output voltage that corresponds to about 90% charge of the rechargeable cell.

(Currently Amended) 15. A method of operating a hybrid power supply comprises:  
delivering energy from a primary cell to a rechargeable cell the rechargeable cell being an Li-Ion or Li-Polymer rechargeable cell with the energy delivered through a switching type DC/DC boost type converter at a fixed voltage that is less than the full charge voltage of the rechargeable cell.

(originally filed) 16. The method of claim 15, further comprising:  
controlling a circuit that senses primary battery current, and controls in part operation of the converter to provide a constant current discharge on the primary battery side of the hybrid power supply.

(originally filed) 17. The method of claim 15 wherein the primary cell is an alkaline cell, Zn-air cell, fuel cell or solar cell, or another current limited power source.

[Claim 18 is canceled]

(Currently Amended) 19. The method of claim 15 wherein the circuit delivers an output voltage that corresponds to about 90% charge of the rechargeable cell.

(New) 20. A hybrid power supply comprises:

a switching type DC/DC boost type converter that receives energy from a primary battery cell, with the primary battery cell being an alkaline cell, Zn-air cell, fuel cell, solar cell, or another current limited power source, and delivers energy to a rechargeable cell, the rechargeable battery being a Li-Ion or Li-Polymer rechargeable cell, and with the switching type DC/DC converter set to provide a fixed output voltage that is less than the full charge voltage of the rechargeable cell; and

an operational amplifier with a primary battery current sensing resistor to provide primary battery current control with the output of the amplifier coupled in a closed feedback loop of the DC/DC converter and the closed feedback loop of the converter further comprises a resistor coupled between output and feedback terminals of the converter.

(New) 21. The hybrid power supply of claim 20, further comprising:

a circuit including a primary battery current control that senses primary battery current, and controls in part operation of the converter to provide constant current discharge on the primary battery side of the hybrid power supply.

(New) 22. The hybrid power supply of claim 20 wherein the circuit further comprises:

a primary current sense amplifier/comparator and a power shutdown circuit to shut down the primary current sense amplifier/comparator.

(New) 23. The hybrid power supply of claim 20 wherein the circuit delivers an output voltage that corresponds to about 90% charge of the rechargeable cell.

(New) 24. The hybrid power supply of claim 20 wherein the primary cell is an alkaline cell, Zn-air cell, or fuel cell.

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Page : 6 of 9

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(New) 25. The hybrid power supply of claim 20 wherein the primary cell is a fuel cell.

(New) 26. The hybrid power supply of claim 20 wherein the primary cell is an alkaline cell.